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Clinical and pathological evaluation of patients with leukocytoclastic vasculitis: a retrospective single-center rheumatology experience

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ABSTRACT

Aims: This study aimed to evaluate the clinical and pathological characteristics of adult patients with leukocytoclastic vasculitis (LCV) and to assess the diagnostic impact of direct immunofluorescence (DIF) test in rheumatology practice.

Methods: The study included 102 adult patients admitted to the rheumatology clinic with palpable purpura between June 2020 and April 2025. All of the patients have a DIF test and a positive skin biopsy for LCV. The clinical and histopathological characteristics of the patients were retrospectively reviewed.

Results: After all diagnostic tests, 84 patients (82.4%) were classified as immunoglobulin A vasculitis (IgAV) and 11 (10.8%) as single-organ cutaneous small vessel vasculitis (SoCSVV). Sixty-five patients (63.7%) had comorbid diseases; endocrine-metabolic (36.3%) and cardiovascular diseases (30.4%) were the most common. Eighty-four patients (82.3%) received corticosteroids at various doses, and 41 (40.1%) received steroid-sparing agent. The DIF test supported the final clinical diagnosis in 55 patients (54%), was negative in 27 patients (26.4%), and revealed non-specific findings in 20 patients (19.6%). DIF results led to a change in the clinical pre-diagnosis in only 14 patients (13.7%). No significant differences were found between the two groups when comparing the laboratory and clinical findings at presentation in patients with skin-limited systemic vasculitis and those with SoCSVV.

Conclusion: Leukocytoclastic vasculitides that are assessed in adult rheumatology clinics are highly likely to be part of systemic vasculitides, particularly IgAV. Most adults with LCV have comorbidities and need corticosteroids. In clinical practice, the impact of the DIF test on classifying patients with LCV is limited.

Keywords: Leukocytoclastic vasculitis, immunofluorescence, immunoglobulin A vasculitis, pathology

INTRODUCTION

Leukocytoclastic vasculitis (LCV) is an umbrella term that refers to inflammatory damage of the small dermal vessels.[1] LCV is essentially a histopathological finding of the small vessel vasculitides, but it can also manifest as a component in all other types of vasculitides except large vessel vasculitis.[2]

Although it is primarily a nomenclature report, the 2012 Revised Chapel Hill Consensus Report (RCHCR) remains the most commonly used classification for vasculitis in clinical practice. The 2012 RCHCR largely resolved the long-standing confusion surrounding the naming of vasculitides. However, debates about the naming of cutaneous vasculitides continued. In 2015, Loricera et al.[3] criticised the inadequacy of the 2012 RCHCR in defining cutaneous vasculitis. They defined the term "single-organ cutaneous small vessel vasculitis" (SoCSVV) for idiopathic cutaneous small vessel vasculitis restricted to the skin. This definition has also been used in studies published subsequently.[4,5] In 2018, a team led by Sunderkötter,[6] which included researchers from the group that prepared the 2012 RCHCR, published a dermatological supplement to the 2012 RCHCR. The term SoCSVV was not mentioned in this report. Cutaneous vasculitides were divided into three groups: a component of systemic vasculitides, a skin-limited form of systemic vasculitides, and cutaneous single-organ vasculitis. In this article, we used the term "SoCSVV" instead of the term "cutaneous leukocytoclastic angiitis" used in the 2012 RCHCR.

A significant proportion of LCVs are idiopathic, but they also may be observed as part of systemic vasculitides. The clinical spectrum varies considerably depending on the cause; for instance, SoCSVVs are often mild, whereas ANCA-associated vasculitides (AAV) may be mortal.[4] The most common cause of LCV in children is IgA vasculitis (IgAV), which typically has a favourable prognosis and does not require potent immunosuppressive treatment.[7,9] In adults, the aetiological

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causes are more diverse. Increasing age brings various comorbidities and makes the disease management more difficult.[10] Therefore, determining whether LCV in adults is part of an underlying systemic disease and identifying accompanying comorbidities are essential for disease management. Although laboratory tests and skin biopsies are readily available for diagnostic purposes, access to direct immunofluorescence (DIF) testing is often limited.

This study aimed to examine the clinical, laboratory, and histopathological characteristics of patients with LCV admitted to an adult rheumatology clinic.

METHODS

Ethics

The study was conducted in accordance with the Declaration of Helsinki. Ethical approval for the study was obtained from the Fırat University Non-interventional Researches Ethics Committee (Date: 24.04.2025, Decision No: 2025/07-19).

Patient Population and Study Design

This retrospective cohort analysis was conducted at the Rheumatology Department of Başakşehir Çam and Sakura City Hospital and Rheumatology Department of Şırnak State Hospital. Initially, 156 patients over 18 years who were admitted to the adult rheumatology clinic with palpable purpura between June 2020 and April 2025 were identified. Patients without a skin biopsy or DIF test, or with a skin biopsy that did not reveal LCV, were excluded. A total of 102 patients were included in the study. The clinical, laboratory, and histopathological characteristics of the patients were analysed.

Definitions

The 2012 RCHCR was used for disease classification.[2] However, instead of the term "cutaneous leukocytoclastic angiitis" in the 2012 RCHCR, the term "single organ cutaneous small vessel vasculitis" was used. The 2010 EULAR/PRINTO/PRESS classification criteria were used for the diagnosis of IgAV.[11] To determine the relationship between DIF results and final clinical diagnoses, DIF results were divided into four groups: supportive of the final diagnosis, determinative of the final diagnosis, nonspecific for diagnosis, and negative results. Standard haematoxylin-eosin staining was used in the pathological examination, and the DIF test was used to assess the presence of IgA, IgM, IgG, C3, and fibrinogen. For rheumatic diseases, all patients were tested for rheumatoid factor (RF), anti-nuclear antibody (ANA), extractable nuclear antibodies (ENA), anti-proteinase 3 (PR3) antibody, anti-myeloperoxidase (MPO) antibody, serum complement 3 (C3), and complement 4 (C4). For chronic infections, HBsAg, anti-HCV, and HIV serology were routinely tested.

Statistical Analysis

The data analyses were performed using Statistical Package for the Social Sciences (SPSS) 26.0 (IBM, Chicago, IL, USA). Kolmogorov-Smirnov and Shapiro-Wilk tests were used to evaluate the distribution pattern of the data. Continuous variables were summarised as mean±standard deviation or median, while categorical variables were summarised as percentages. Results with a p-value <0.05 were considered statistically significant. Comparisons of continuous variables between groups were performed using the t-test or Mann-Whitney U test after evaluating their distributions. For comparisons of categorical variables, the chi-square (χ^2) test or Fisher's exact test was used.

RESULTS

Of the 102 patients included in the study, 44 were female (43.1%) and 58 were male (56.9%). The mean age of the cohort was 48.9±17.2 years. When considering comorbidities, 65 (63.7%) patients had at least one, and 33 (32.3%) patients had multiple comorbid diseases. The most common comorbidities were endocrine-metabolic (36.3%) and cardiovascular diseases (30.4%). Sixteen patients (14.7%) had a concomitant chronic rheumatic disease, with familial Mediterranean fever (FMF) being the most common (5.8%). Five patients (4.9%) had a concomitant malignancy. In terms of potential triggers, medications were identified as potential triggers in 49 (48%) patients and infections in 48 (47.1%) patients; these were the most common. Twenty-seven (26.4%) patients had more than one potential trigger factor. After physical examination, detailed laboratory analysis, and pathological evaluation, the final diagnoses of the patients were reviewed. Of the 102 patients, 84 (82.4%) had IgAV, 11 (10.8%) had SoCSSV, 2 (1.9%) had AAV, 2 (1.9%) had cutaneous polyarteritis nodosa (PAN), 1 (1%) had cryoglobulinemic vasculitis, 1 (1%) had rheumatoid vasculitis, and 1 (1%) had systemic lupus erythematosus (SLE)-associated vasculitis. In terms of organ-system involvement, joint involvement was observed in 57 patients (55.9%), gastrointestinal involvement in 26 patients (25.5%), and renal involvement in 61 patients (59.8%). Additionally, two patients (2%) had polyneuropathy, and two patients (2%) had episcleritis. Of the patients, 84 (82.3%) received corticosteroids at various doses, and 41 (40.1%) received steroid-sparing immunosuppressive therapy. The most commonly used steroid-sparing drugs were azathioprine (17.6%), cyclophosphamide (15.6%), mycophenolate mofetil (3%), hydroxychloroquine sulphate (1.9%), and colchicine (1.9%). Eighteen patients (17.6%) with skin-limited disease were followed without medication. The clinical characteristics of the patients are presented in **Table 1**.

DIF test results often take time. During the diagnostic process, preliminary diagnoses may change, and some of the final diagnoses are clarified once the DIF examination is completed. When viewed from this perspective, pre-diagnoses were determined as isolated organ vasculitis (isolated skin involvement) in 20 (19.6%) patients and systemic small vessel vasculitis in 82 (80.4%) patients, based on the initial examination and simple laboratory tests. After detailed laboratory examinations, rheumatic antibodies and imaging results were obtained, clinicians diagnosed SoCSVV in 21 patients (20.6%), IgAV in 71 patients (69.6%), rheumatoid vasculitis in 4 patients (3.9%), 3 (2.9%) patients with Sjögren's syndrome (Sjs)-associated vasculitis, 1 (1%) patient with SLE-associated vasculitis, and 2 (2%) patients with AAV. After obtaining pathological evaluation and DIF test results, changes were observed in the final diagnoses of some patients. Eighty-four patients (82.4%) were classified as IgAV,

Table 1. The clinical and demographic characteristics of the patients

	n=102
Age, mean±SD	48.9±17.2
Female, n/N (%)	44 (43.1)
Vasculitis classification, n/N (%)	
IgAV	84 (82.4)
SoCSVV	11 (10.8)
AA V	2 (2)
Cutaneous PAN	2 (2)
Rheumatoid vasculitis	1 (1)
SLE associated vasculitis	1 (1)
Cryoglobulinemic vasculitis	1 (1)
Comorbid disease, n/N (%)	65 (63.7)
Cardiovascular diseases	31 (30.4)
Chronic pulmonary diseases	7 (6.9)
Chronic liver diseases	1 (1)
Chronic kidney diseases	7 (6.9)
Endocrine-metabolic diseases	37 (36.3)
Neuropsychiatric diseases	10 (9.8)
Chronic rheumatic diseases	16 (14.7)
RA	2 (1.9)
Gout	3 (2.9)
FMF	6 (5.8)
Sjs	2 (1.9)
SLE	1 (1)
AS	2 (1.9)
Other chronic inflammatory diseases	4 (3.9)
Malignancy	5 (4.9)
Multiple Comorbidity	33 (32.3)
Potential triggers/associations, n/N (%)	70 (68.6)
Drugs	49 (48)
Infections	48 (47.1)
Malignancies	5 (4.9)
Presence of mulitple factors	27 (26.4)
Extracutaneous organ-system involvement, n/N (%)	
Joint	57 (55.9)
Gastrointestinal	26 (25.5)
Renal	61 (59.8)
Polyneuropathy	2 (2)
Ocular (episcleritis)	2 (2)
Treatments, n/N (%)	
Corticosteroid	84 (82.3)
Steroid sparing-agent	41 (40.1)
None	18 (17.6)

SD: Standart deviation, IgAV: Immunglobulin A vasculitis, SoCSVV: Single-organ cutaneous small vessel vasculitis, AAV: ANCA-associated vasculitis, PAN: Poliarteritis nodosa, SLE: Systemic lupus erythematosus, RA: Rheumatoid arthritis, FMF: Familial Mediterranean fever, Sjs: Sjögren Sydrome, AS: Ankylosing spondylitis

11 (10.8%) as SoCSVV, 2 (2%) as cutaneous PAN, 1 (1%) as cryoglobulinemic vasculitis, 1 (1%) as rheumatoid vasculitis, 2 (2%) as AAV, and 1 (1%) as SLE-associated vasculitis. Most of the diagnostic changes were observed between SoCSVVs and skin-limited IgAV. The changes in the diagnostic process are presented in **Table 2**.

Clinical differentiation is easier when LCV patients have findings of involvement in other systems. However, in cases of skin-limited disease, differentiation is often not possible without DIF test results. At this point, a comparison was made between skin-restricted systemic vasculitides and SoCSVVs in terms of laboratory findings at presentation, potential triggers, and presentation season. In patients with skin-restricted systemic vasculitis, the levels of C-reactive protein (10.7 vs. 19.7 mg/L; p=0.518), erythrocyte sedimentation rate (35.6 vs. 41.2 mm/h; p=0.638), and ferritin (128 vs. 279 ng/ml; p=0.711) were higher than in patients with SoCSVV. However, these differences were not statistically significant. No differences were found between potential triggers or seasons of presentation. Comparative findings between two groups are presented in **Table 3**.

Table 2. Changes in patients' pre-diagnoses during the diagnostic process

	n=102
Pre-diagnoses after the initial visit, n/N (%)	
Single-organ vascilitis (isolated skin involvement)	20 (19.6)
Systemic small vessel vasculitis	82 (80.4)
Pre-diagnoses following specific rheumatic laboratory tests, n/N (%)	
SoCSVV	21 (20.6)
Systemic vasculitis	81 (79.4)
IgAV	71 (69.6)
Rheumatoid vasculitis	4 (3.9)
Sjs associated vasculitis	3 (2.9)
SLE associated vasculitis	1 (1)
AAV	2 (2)
Final diagnoses after pathological evaluation and DIF test, n/N (%)	
SoCSVV	11 (10.8)
Systemic vasculitis	91 (89.2)
IgAV	84 (82.4)
Rheumatoid vasculitis	1 (1)
PAN	2 (2)
Cryoglobulinemic vasculitis	1 (1)
SLE associated vasculitis	1 (1)
AAV	2 (2)

SoCSVV: Single-organ cutaneous small vessel vasculitis, IgAV: Immunglobulin A vasculitis, Sjs: Sjögren Syndrome, SLE: Systemic lupus erythematosus, AAV: ANCA-associated vasculitis, DIF: Direct immunofluorescence, PAN: Poliarteritis nodosa

To evaluate the diagnostic impact of the DIF test, the results were categorised into four groups: supportive of the final diagnosis, determinative of the final diagnosis, non-specific and negative test. DIF findings supported the final clinical diagnoses in 55 (54%) patients, while 27 (26.4%) patients had negative DIF and 20 (19.6%) had nonspecific findings. DIF results changed clinical preliminary diagnoses in only 14 (13.7%) patients. All patients in whom the DIF test played a supportive and decisive role in the diagnostic classification had IgAV. For other disease groups, DIF results were either non-specific or negative. The results regarding the diagnostic contribution of the DIF examination are presented in **Table 4**.

DISCUSSION

The literature on the clinical subgroup distribution of leukocytoclastic vasculitides varies. Classification data are closely related to the population in which the study was conducted. If the patient population is selected from dermatology or pathology cohorts, idiopathic SoCSVVs may be observed in 45-50% of cases, while in rheumatology cohorts, systemic vasculitis is likely to be found at a higher rate.[12,13] Indeed, the majority of LCVs in our cohort (82.4%) were a component of IgAV. The main reason for this difference is that patients presenting with skin symptoms are initially assessed in dermatology clinics. A significant proportion of patients without systemic involvement are not referred to rheumatology clinics and continue to be monitored in dermatology clinics. From an etiological perspective, triggers have been a topic of discussion in LCVs. Although no cause can be identified in approximately half of cases, drugs and infections have been reported as the most common triggers in many series.[14,15] Similarly, the most common identifiable triggers in our cohort were medications and infections.

Table 3. Comparison of clinical and laboratory features of the patients with single-organ cutaneous small vessel vasculitis and patients with skin-limited systemic vasculitis

	SoCSVV n=11	Skin-limited systemic vasculitides n=11	p value
Complete blood count parameters			
Leukocyte count, x10^6/L, mean±SD	9575±3153	8433±5509	0.567
Neutrophil count, x10^6/L, mean±SD	6748±2356	5654±4988	0.526
Lymphocytet count, x10^6/L, mean±SD	2112±1279	2230±1105	0.775
Hemoglobin level, gr/dl, mean, mean±SD	12.9±1.7	12.4±1.9	0.335
Thrombocyte count, x10^9/L, mean±SD	295±86	326±119	0.296
SII, median [IQR]	800 (553-1745)	713 (565-1030)	0.901
Biochemical parameters			
CRP, gr/dl, median [IQR]	10.7 (6.6-21.3)	19.7 (0.5-77)	0.518
ESR, mm/saat, mean±SD	35.6±26.3	41,2±25.5	0.638
Creatinin, mg/dl, median [IQR]	0.77 (0.53-0.80)	1.05 (0.7-2.7)	0.056
ALT, IU/L, mean±SD	24.6±15.8	26.7±17	0.775
AST, IU/L, median [IQR]	21 (17-28)	20 (15-28.5)	0.675
Albumin, gr/dl, median [IQR]	3.8 (3.6-4.2)	3.9 (3.2-4.4)	0967
LDH, U/L, mean±SD	214.8±40.3	229.2±62.9	0.542
Ferritin, ng/ml, median [IQR]	128 (65-280)	279 (108-547)	0.711
Low C3, n/N (%)	0 (0)	1 (11.1)	0.450
Low C4, n/N (%)	0 (0)	0 (0)	
Antibodies			
RF, n/N (%)	1 (9.1)	2 (18.1)	
ANA, n/N (%)	1 (9.1)	0 (0)	
Anti-ds DNA, n/N (%)	0 (0)	1 (9.1)	
Anti-SSA, n/N (%)	0 (0)	0 (0)	0.556
Anti-SSB, n/N (%)	0 (0)	0 (0)	0.676
Other ENA, n/N (%)	0 (0)	0 (0)	0.891
Anti-MPO, n/N (%)	0 (0)	0 (0)	
Anti-PR3, n/N (%)	0 (0)	0 (0)	
Potential triggers/associations, n/N (%)			
Drugs	8 (72.7)	7 (77.8)	0.918
Infections	7 (63.6)	4 (44.4)	0.653
Malignancies	2 (18.2)	0 (0)	0.479
Presence of mulitple factors	6 (54.5)	4 (44.4)	0.912
Presentation season, n/N (%)			
Winter	4 (36.4)	3 (27.2)	
Spring	1 (9.1)	2 (18.2)	0.776
Summer	2 (18.2)	1 (9.1)	
Autumn	4 (36.4)	5 (45.4)	

SoCSVV: Single-organ cutaneous small vessel vasculitis, , SD: Standart deviation, IQR: Inter-quartile range, CRP: C-reaktif protein, ESR: Erythrocyte sedimentation rate, ALT: Alanine-aminotransferase AST: Aspartat-aminofransferase, LDH: Lactate dehydrogenase, C3: Complement 3, C4: Complement 4, RF:Rheumatoid factor, ANA: Anti nuclear antibody, ds-DNA: Double-stranded deoxyribonucleic acid , SSA: Sjögren Syndrome antibody-A, SSB: Sjögren Syndrome antibody-B, ENA: Extractable nuclear antibody, MPO: Myeloperoxidase, PR3: Proteinaz-3

Table 4. The contribution of the DIF test to the final diagnosis of patients

Final diagnoses, (N)	DIF results			
	Supporting n/N (%)	Decisive n/N (%)	Nonspecific n/N (%)	Negative n/N (%)
Totally, 102	55 (54)	14 (13.7)	20 (19.6)	27 (26.4)
IgAV, (84)	55 (65.5)	14 (16.6)	14 (16.6)	15 (17.9)
SoCSVV, (11)	0 (0)	0 (0)	2 (18.2)	9 (81.8)
AAV, (2)	0 (0)	0 (0)	1 (50)	1 (50)
Cutaneous PAN, (2)	0 (0)	0 (0)	2 (100)	0 (0)
SLE associated vasculitis, (1)	0 (0)	0 (0)	1 (100)	0 (0)
Rheumatoid vasculitis, (1)	0 (0)	0 (0)	0 (0)	1 (100)
Cryoglobulinemic vasculitis, (1)	0 (0)	0 (0)	0 (0)	1 (100)

DIF: Direct immunofluorescence, IgAV: Immunglobulin A vasculitis, SoCSVV: Single-organ cutaneous small vessel vasculitis, AAV: ANCA-associated vasculitis, PAN: Poliarteritis nodosa, SLE: Systemic lupus erythematosus

There is insufficient literature data evaluating comorbidities prior to diagnosis under the general heading of LCV. It is known that IgAV accounts for the vast majority of LCVs in children and that the disease has a good prognosis in the paediatric group; however, the rate of chronic comorbidities in the paediatric group is quite low.[16] Previous studies have shown that the prevalence of comorbidities (particularly hypertension and diabetes) in adults with IgAV increases with age at a rate similar to that of the general population. Other studies have shown that the prevalence of comorbidities is higher in IgAV patients than in age- and sex-matched control populations and may contribute to increased mortality.[17,18] Hypertension is one of the typical examples in this regard. It is known that hypertension is a negative factor affecting renal prognosis in all small vessel vasculitides that cause renal involvement and proteinuria, particularly IgAV vasculitis.[19,20] Comorbidities may affect both the long-term outcome of the diseases and complicate treatment management. In this

cohort, 82.3% of the patients received corticosteroids at varying doses, while 40.1% received potent immunosuppressive therapy as steroid-sparing treatment. The primary reason for the high rate of immunosuppressive use in this cohort is that it consists mainly of patients with IgAV. In cohorts where SoCSVV or skin-limited systemic vasculitis predominate, this rate may be lower.[13,14] In light of these data and the adverse effects of the drugs used in treatment on chronic comorbid diseases such as hypertension, diabetes and atherosclerosis, it can be concluded that careful determination of treatment indications and thorough evaluation of patients in terms of their comorbid diseases is essential for patients and clinicians alike.

In clinical practice, recognising LCVs is generally not difficult. Palpable purpura is the most common and dominant presentation sign of LCVs and indicates the presence of small vessel vasculitis.[21,22] There is no generally accepted guideline for the diagnostic approach to patients presenting with palpable purpura. However, the diagnostic approach involves often similar steps. Taking a detailed medical history, a systematic physical examination, laboratory tests including those for rheumatic diseases, a skin biopsy, and additional samples for DIF testing are generally sufficient for the diagnostic evaluation of cases.[23] Although DIF is a useful and recommended test for optimal evaluation, it may not be easily accessible in clinical practice, and reporting the DIF results can take a long time. In cases of systemic vasculitides, clinicians must make rapid decisions regarding treatment, and there is insufficient time to review pathology or DIF test reports. At this point, the diagnostic and treatment-guiding impact of DIF examination in rheumatology clinical practice is a matter of interest.

When looking at the DIF test results of the cohort, it was observed that the DIF examination was negative in 26% of patients, nonspecific in 19.6%, and contained findings supporting the final diagnosis in 53.9%. Literature data on the negative rates in DIF tests vary.[24,25] It has been reported that the timing of biopsy and sampling technique are related to the negativity rate of the DIF test and that immune deposits disappear in samples taken from lesions with an onset time exceeding 72 hours, which increases the likelihood of a negative results.[26,27] None of the patterns identified in the DIF test are specific to the disease, but the dense granular IgA deposits seen in the vessel wall support IgA vasculitis, almost all immunoglobulins and C3 deposits in the dermo-epidermal junction (also known as the full-house or lupus band pattern) support SLE, and only immunoglobulin G (IgG) and immunoglobulin M (IgM) deposits support the relatively newly defined IgG/IgM immune complex vasculitis.[23,27] Among these, the highest clinical-pathological correlation is found in cases of IgA deposits and IgAV coexistence.[25] In this cohort, all patients in whom the DIF test supported the clinical diagnosis had IgAV, while the DIF examination was either negative or nonspecific for other clinical diagnoses. In 14 patients (13.4%), the initial preliminary diagnosis changed after the DIF test, and the DIF examination played a primary role in the final classification. The most significant diagnostic change among these patients was the conversion of the final diagnosis of 9 cases initially thought to be SoCSVV to IgAV vasculitis. When examining whether there is a laboratory test that can predict the diagnosis between SoCSVVs and skin-limited systemic vasculitides, no significant difference was found between the two groups. However, in a previous series, polyclonal gammopathy was found to be significantly more common in skin-limited systemic vasculitides compared to the other group.[13] Another interesting point regarding the DIF test is the relationship between test findings and disease prognosis. Particularly, the presence of dense IgA deposits in the DIF test has been reported to be associated with renal and gastrointestinal involvement in IgAV.[29,30] In this cohort, no significant correlation was found between DIF test findings and organ involvement in patients with IgAV. When looked at regarding the effect of the DIF test on treatment, medications were initiated in all patients requiring treatment before the DIF results were available. None of the patients whose diagnosis changed based on the DIF report had systemic involvement findings, and their treatment plans remained unchanged.

The results of this study show that the DIF test has limited diagnostic contribution and therapeutic impact in rheumatology practice for skin vasculitis. Negative DIF results are a significant problem, and biopsy timing, biopsy site, and technique may be sources of negative results. Another important issue is the specificity of the test for vasculitides. We found no other studies with a similar design to ours, particularly in the field of rheumatology, so we could not compare our results directly. However, it is known that the type of vasculitis for which the DIF test is most useful in practice is IgAV, and the sensitivity and specificity of the DIF test for IgA vasculitis have been reported to be between 51% and 84%. These rates are lower and more variable in other types of cutaneous vasculitis.[31] These data suggest that the DIF test has a limited diagnostic value in daily clinical practice. On the other hand, as mentioned earlier, the DIF test is time-consuming, and rheumatologists often initiate treatment without waiting for DIF test results when systemic vasculitis is suspected. This is the main reason for the limited impact of the DIF test on treatment.

Limitations

The study included patients with skin biopsies and DIF tests from a large cohort of 156 patients with palpable purpura. This situation may have led to the exclusion of some patients with a clinically confirmed diagnosis of vasculitis and a change in the distribution of diagnoses in the study population. In some cases, it was not possible to determine whether the biopsied lesions were in the early stages. This situation may have caused additional negative results in the DIF test. These two factors, along with the retrospective design, were the main limitations of the study.

CONCLUSION

Leukocytoclastic vasculitides that are assessed in adult rheumatology clinics are highly likely to be part of systemic vasculitides, particularly IgAV. Most adults with LCV have comorbidities and require corticosteroids; therefore, comorbidities must be carefully evaluated when developing a treatment plan. DIF test may yield negative results in a

significant proportion of patients or may not support the clinical diagnosis. In clinical practice, the impact of the DIF test on classifying patients with LCV and determining the treatment plans is limited.

ETHICAL DECLARATIONS

Ethics Committee Approval

Ethical approval for the study was obtained from the Fırat University Non-interventional Researches Ethics Committee (Date: 24.04.2025, Decision No: 2025/07-19).

Informed Consent

Because the study was designed retrospectively, no written informed consent form was obtained from patients.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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